

HELP SCREEN

GROWING TIPS FOR FUN AND PROFIT

Digging for tips has major drawbacks – among them an aching back and a great many late nights. It also produces large heaps of spoil; all that information you found, can't use, and put to one side.

These information spoil heaps can grow so large that they become complete environments, having their own micro-climate, animal life and plant cover. It's all too easy to find yourself endlessly tramping them down instead of getting on with the work in hand. How much better to get your information on demand, as you need it, in a form that you can conveniently carry away. That's what *Help Screen* is all about.

If you're a newcomer to the world of PCs or you're branching out into new areas, you may need a helping hand through the difficult bits – feel free to ask for help. All questions welcome as the answers are usually relevant to helping others as well.

Help Screen also needs your input. The experts among you can use these pages to pass on a little learning, perhaps even to show off. See your name in print and gain some fame in exchange for just a few lines of wisdom. There will be tricks you've learned that make computing easier. Let others know the problems and the solutions – they often cast light on other problems as well.

It doesn't matter whether you think they're important, your experiences could save someone else hours of frustration. Share the thrill of discovery with us – in all its gory detail, please – and be in with a chance at a total of £50 worth of real money I'm trying to give away every month. Send those tips to Steve Patient, *Help Screen*, PC PLUS, 30 Monmouth St, Bath, BA1 2BW.

THE FIX IS IN

I've had many letters from readers of *Upgrade Blues* (issue 57) pointing out that you can have your cake and eat it. Despite upgrading an Amstrad PC1512 to MS-DOS 3.3, you can still make use of the Amstrad mouse and the Non Volatile RAM (NVR). In fact, the PC Independent User Group can supply two programs, KEYBUK33.EXE and RTC.COM to fix the problems.

In defence of my answer, I would point out that there is no official Amstrad fix. Amstrad does not offer an upgrade to MS-DOS 3.3. For all those who want to try the above fixes, you can contact the PC Independent User Group by phoning (0732) 771512. Incidentally, it is worth noting that they also appear on the companion disk to the PC PLUS *Help Screen Collection* book (see page 232 for details of our special offers).

AMNESIA

I have a seemingly simple question based entirely on curiosity and without any practical relevance, but one that does leave me somewhat baffled: what actually is the free space on a hard disk? My hard disk gives the following information:

All the letters we publish are preceded by a symbol to help you identify the level of skill required for each:



Where you see this symbol, you'll find a question or a tip from someone just starting out with the PC. They might be completely new to computing, or simply changing over from some other computing environment. Whichever it is, the whole thing should be comprehensible to any reader.



This is where the wild things are. Questions and answers from the furthest reaches (and innermost depths) of computerland. Inevitably there will be material which demands explanations that we don't have the space for, but at least it offers something to get your teeth into.



Even the facile few can occasionally be baffled. You may have been using your computer for years, but that doesn't mean it can't still throw up a few surprises. This is the heading for tips on batch files, pop-ups and utilities.



PC PLUS WARNING: some of this material can seriously endanger your PC's health. Use this stuff wrongly and there will be tears before bedtime. Handle anything marked with this icon with extreme caution and remember that PC PLUS can't be held responsible for any data loss or other damage – you have been warned!



This logo precedes a letter concerning the PC PLUS SuperDisk. Here's where you'll find advice and tips on using the various programs and utilities found on the PC PLUS SuperDisk.

CHKDSK – 16,168,960
SuperCalc 4 – 16,168,960
WordPerfect 5.1 – 16,164,864
Windows File Manager – 14,071,808
CHKDSK in Windows – 13,023,232

I ask you – where is the 4K that WordPerfect couldn't find? More importantly though, where is the missing 3 Mbytes under Windows?
 Richard Bowden-Dan Greenwich

When you ran CHKDSK from the DOS command line, you get the maximum figure you are going to get. If you then run an application and check the free disk space under that (either going back to DOS or using the facilities of the application) you will often see less free disk space due to the creation of temporary files. Many applications use these. WordPerfect creates its temporary files as system files. If you want to see them, use a file viewer that shows hidden files as well as those with the

read/write attribute.

From what happens with Windows, I assume you're running it in Real or Standard mode. Here Windows will create a temporary swap file for each non-Windows application you run until it runs out of disk space. You are clearly running several non-Windows applications. In enhanced mode you'd lose disk space for different reasons. Unless you create a permanent swap file, Windows grabs large amounts of disk space as a large temporary swap file whenever you start it and as with the application swap files, marks it as a hidden file.

Dos	Sort	Tag	More	File	Zip	setuP	eXit	08:53:24 AM
T:\C:\								
WORKS				DIR 6-13-90 1:13p				File 0051 of 0109
WPSB				DIR 2-01-90 11:00a				Bytes Free 8628224
WS				DIR 6-12-90 3:52p				Total Tagged 1
WT				DIR 1-04-91 9:51a				Bytes Tagged 3396
XTGOLD				DIR 1-29-90 4:29p				copy a: Total Deleted 0
ZORTECH				DIR 1-18-90 11:41a				Bytes Deleted 0
15332600				3396 11-08-90 3:33p A S				A: B: +,- = Pull Down Menus
18208006				12 11-09-90 6:20p A				Press F10 for HELP
18215801				12 11-09-90 6:21p A S				Filespec: *.*
ABC2 .BAK				371 2-13-91 3:17p A				Eclipse Technologies
ABC2 .BAT				371 2-13-91 3:19p A				7733 N. 80th Street
ACANCEL .EXE				786 5-02-88 2:01p A				Milwaukee, WI 53223
ACHRSUN .EXE				8496 5-02-88 2:01p A				Last Mouse Installed 09:00
A1NSTALL .EXE				33719 5-02-88 2:00p A				
ANSI .SYS				4785 6-15-90 5:00a A				
ATOM .EXE				23072 11-29-89 8:21p A				
AUTOEXEC .1				937 1-16-91 18:22a A				
AUTOEXEC .BAK				536 3-27-91 12:58a A				
AUTOEXEC .BAT				562 5-07-91 12:20a A				
AUTOEXEC .OLD				490 2-08-91 11:49a A				

StupenDOS – Ver 2.8 Copyr. 1990 Eclipse Technologies All rights reserved.

F1-Copy F2-Move F4-Delete F5-drive F7-Tree F8-type F9-more F10-Help

● The three files with numbers for names are temporary work files created by WordPerfect. They're shown here courtesy of StupenDOS

COUNTED OUT

 In issue 56 *Help Screen*, you published two macros for the *Word for Windows* word processor, including one for spelling checking a selected block of text supplied by S G P Geoghegan. A few weeks ago, I was browsing through the help system and, under the function key assignments, found 'F7 Check spelling of selected text'. I tried it and it works. How nice of Microsoft to include 'the kind of feature that a good word processor ought to support'.

Incidentally, can we have a *Windows* icon designer on a future *SuperDisk*?

S Croft
Leeds

Well, there you are. Our office *WinWord* user didn't know about that function either – and you only came across it by accident. This seems to me to be not so much a black mark against Mr Geoghegan as against programs that operate in several modes. If you expect to find things on pull-down menus or icon bars (where they can be invoked using the mouse) why would you go looking for them on function keys?

Including keyboard equivalents of menu commands makes sense; leaving them off menus doesn't. If it's necessary to resort to cascading menus – as many Apple Macintosh applications do – all functions of a menu-driven program should be accessible by the mouse. As an occasional software reviewer, I appreciate consistency.

In answer to your request for an icon designer on the *SuperDisk*, why not? Send submissions to the *SuperDisk* Editor pronto.

NAMING NAMES

 You have up to 11 characters available to name a floppy disk. I find diskettes with volume names extremely useful. Although I use

only a few names – UTILITIES, LETTERS and suchlike, I can see immediately whether a disk is likely to contain the file I'm looking for.

Martin Nash
London

I use volume names too (LABEL A:STEVE usually) to identify the origin of diskettes in the office. Sometimes they even find their way back to me.

INVISIBLE ACTIONS

 There is a file on my disk that I can't get at. I can't type it, look at it using an editor, delete it, or even rename it. Somebody told me about the possibility of using a disk-editor to get rid of it, but I am not convinced that this is a good idea – I may cause more problems than I solve. Is there a way around this?

Chris Thompson
Leeds

These mystery files you can't work with often occur when programs that use low-level calls create a file with an illegal name – names with spaces, for example. The internal routines of MS-DOS aren't too choosy about filenames, and a program with a slight bug may create a name that's invalid for other (normal) purposes.

You'll be pleased to hear that standard MS-DOS commands can sort this one out for you by deleting the file. The first step is to make a copy of the mysterious file, but give the copy a valid name. You can do this with the XCOPY command, as follows:

XCOPY *.* MYSTERY /P

This will try to make a copy of all the files in the directory, and give each copy the name MYSTERY. However, the /P option stops at each file and asks if you wish to copy it.

Answer [N] for every file until you reach the problem one. When it has copied that one XCOPY will ask about the next file (if there is one). Answer with [CTRL][C] to exit XCOPY. You will be left with a new file in your directory – named MYSTERY – which is an exact copy of the problem file.

You may get a message asking whether MYSTERY is a filename or a directory name. Answer F (for filename), and continue.

You can delete the old misnamed file in a similar way – but check that your version of MS-DOS has the /P option on its DEL or ERASE command (some don't):

DEL *.* /P [Enter]

Once again, answer [N] to every file except the one you want to delete – then use [CTRL][C] to finish. If you get the 'Are you sure?' warning when you enter the DEL command, your version of MS-DOS doesn't support the /P option, so answer [N] and forget it. Your only option now is to use ATTRIB to put a read-only attribute on all other files temporarily, and then use:

DEL *.*.

Note that the DEL command cannot delete read-only files.

GET AWAY WITH YOU

 I found your article on *MainLAN GTi* installation (issue 57) most interesting, having installed a number over the past few months. However, in this case the majority of the terminals had to be capable of sending out faxes.

To save the cost of a modem on each terminal, we produced software to link to one modem from any terminal. This also allows us to dial into the network from a remote computer and use the *MainLAN CONNECT* command

ELECTRIC STRING

 MS-DOS doesn't provide an easy way of entering a multi-key response within a batch file (although there are a number of Public Domain utilities that do). However, for those who like to use MS-DOS to the full, there is a way to achieve this.

It only works in MS-DOS 3.3 and above, however. It requires the creation of two small text files – once they're in place, you can test for a string as input in a batch file. The first file is called RESPOND.SET and contains this line:

SET RESPOND=

There must be no carriage return after the equals sign. The next file is called RESPOND.BAT and looks like this:

```
@ECHO OFF
SET RESPOND=
DEL SETIT.BAT
COPY CON TEMP.BAT > NUL
COPY RESPOND.SET+TEMP.BAT SETIT.BAT >NUL
SETIT
```

Once these two simple text files have been created, you can call RESPOND in your other batch files to get a string. Like so:

```
@ECHO OFF
ECHO Type in yes or no and finish
ECHO with [Ctrl][z] or [F6]
```

ECHO Do you wish to proceed?

```
ECHO.
:AGAIN
CALL RESPOND.BAT
FOR %%Z IN (yes no) DO IF %RESPOND%==%%Z GOTO %%Z
ECHO Try again
ECHO.
GOTO AGAIN
:YES
ECHO You entered yes
GOTO END:
:NO
ECHO You entered no
:END
```



The RESPOND batch file simply writes the input string to a temporary file. When you quit using [F6], the contents of that file are added to RESPOND.SET and written to SETIT.BAT, which is then run. SETIT.BAT creates an environment variable with the appropriate value. This is then checked by the calling batch file.

Alistair Hamilton
Edinburgh

I really like this technique for using string input in a batch file – despite the clumsy [F6] rather than [Enter] to finish. It lends itself to other ends too, like feeding in file and program names for an interactive batch file to work with. I'm sending you a copy of BATCOM (courtesy of The Ctrl-Alt-Deli) for your efforts.

PARKER

 Can you tell me if there is any way to park both the hard disks in drive-C and D in my PC? As soon as I use the park command in one drive or the other, the next function only allows me to reboot or switch off.

David Dawson-Taylor
Fareham

I've never come across a PARK utility that didn't park all the physical drives in a PC. If you think about it, it wouldn't make sense to do otherwise, since accessing it again to park a second or third drive could unpark a drive that was previously parked.

What I think is happening here is that you have a single physical hard disk divided into two logical drives. Part of the drive is formatted as drive-C and part as drive-D. When you run the PARK utility, it parks the single physical drive as you'd expect.

Unfortunately, this is a difficult state of affairs to prove from the keyboard. The only utility that can help decide is FDISK. If you

IBM Personal Computer
Fixed Disk Setup Program Version 3.30
(C)Copyright IBM Corp. 1983,1987

FDISK Options

Current Fixed Disk Drive: 1

Choose one of the following:

1. Create DOS partition
2. Change Active Partition
3. Delete DOS partition
4. Display Partition Information

Enter choice: [1]

Press ESC to return to DOS

- FDISK varies slightly between versions. However, note that there will always be an option to display the current partition information

to link to any terminal.

If any of your readers are interested in using this feature, they can contact us on (0202) 708372.

Ian French
ICC
Poole

We are always rather interested to hear from anyone that has something useful to add to any of the programs we review. Out of interest, another reader wrote in to point out that there is at least one comms

program that will work over a Local Area Network (LAN) - Mirror 3 LAN - though I have not used it myself. Incidentally, there is also a LAN version of PC Anywhere.

However, the favourite, according to the network gurus that I've asked, is a package that comes from Cross Communications of Boulder Colorado, called LAN+MODEM. The package is available from PC Communications (telephone 0628 851111). Here at PC PLUS, we have not tested any of these yet, but we will in the future.

The problem for a communications

run FDISK and choose the selection 'Show partition information', it will tell you the current state of the hard disk(s), but the information can be difficult to interpret and it's all too easy to make a selection that you'll later regret.

Taking the lid off will usually reveal the number of hard disks and is less risky, though with some modern machines it will still not be obvious. Finally, if your machine is an AT, then the physical equipment list is held in the CMOS settings and you can view it there. Your PC hardware manual will usually tell you how to access this - but don't change anything. There are a number of shareware and Public Domain PC utilities that will produce lists of physical and logical drives.

Oddly enough, there appears to be no simple way for a program to decide this question, that will work with both AT and XT machines - or in fact with all hard disk types. I'm open to any suggestions, so send me your ideas - there is a cash prize for the shortest and most elegant program to list physical and logical hard disks in any PC.

```
Display Partition Information
Current Fixed Disk Drive: 1
Partition Status Type Start End Size
C: 1 A PRI DOS 0 721 722
C: 2 PRI DOS 722 975 254

Total disk space is 976 cylinders.

Press ESC to return to FDISK Options
```

- In this example the hard disk has two partitions - the active C partition, cylinders zero to 721 and logical drive D from 722 to 975

FILE COUNT

 I have my file handles set to 50 on my Amstrad PC1512. I was therefore surprised to get an insufficient files error message while running WordTech R & R Report Writer for DBXL, which requires 42 files. Amstrad's handbook says that the range is 'eight to 255, though 20 is the maximum in practice'.

CHKDSK confirmed that RAM was still being used for the extra files at about 50 bytes for each. Amstrad Technical Support told me to set the buffers equal to the number of files - needless to say this didn't work.

Microsoft tells me that the limit is 20 open files for versions of MS-DOS up to 3.2, but that some companies supply versions of MS-DOS that do not have this limit.

Many applications seem unaware of this problem and specify MS-DOS 2.2 or above and demand up to 60 files (DataEase, for example).

I have now installed DR-DOS 5.0, and the files problem has disappeared. However, I cannot understand why others have not reported this problem when using heavyweight packages.

Ron City
Peterborough

You are absolutely right. MS-DOS up to 3.2 will only support 20 open files - though you can specify up to 255 (the extra ones are just a waste of 48 bytes each).

Amstrad is, in fact, aware that some of the information in its manuals is erroneous. Up to 255 open files can be supported on 3.3 and above (and DR-DOS 5.0). I don't know of a manufacturer-specific earlier version of MS-DOS that will let you open more than 20 files.

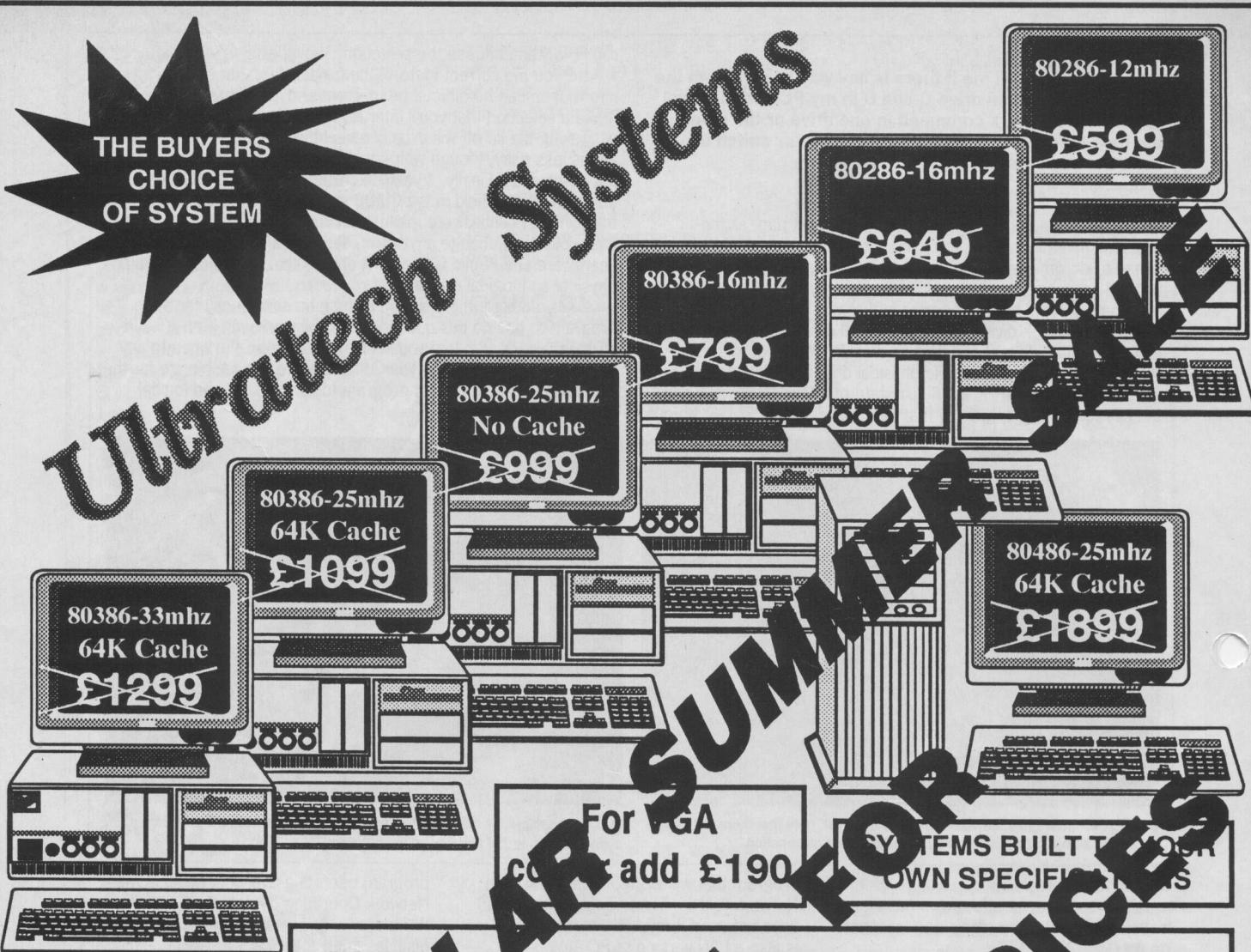
Having said that, it is apparently possible for low-level programmers to cheat the system. They open as many files as they like and save out the file information to temporary data areas as soon as they get over the limit.

The appropriate file information is swapped back in for MS-DOS to use as the extra files are accessed, fooling MS-DOS into thinking that it only really has 20 open at any time. Effectively, the programmer is writing his own file handling routines. Needless to say this kind of thing is rather difficult, non-standard and risky.

It's worth pointing out that just because a program says it needs more open files than your system can have, it doesn't mean that it will always use them - this applies especially to database applications. That may be why others haven't reported the problem.

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ESCAPATOLOGY

 In Beginner's Workshop (issue 56), Mike Hardaker suggests what seems to be a rather contorted way to get an Escape character (27 decimal) into a file.

As he is using the *NewWord* word processor, all he really has to do is to enter [Ctrl][P] followed by the [Esc] key – the Escape character will then be put into the file.

With EDLIN, you just need to press

[Ctrl][V] followed by [0]. This approach seems to be simple and effective.

Chris Bird
Penzance

Actually, I think Mike's method is rather elegant – but then I would since I featured it in *Help Screen* recently. It has the advantage of working on any PC, regardless of the software available.

Many word processors will insert any character (including Escape or even Bell (7))

if you hold down the [Alt] key and type in the ASCII value. WordPerfect will insert the Escape character if you press the [Esc] key.

IN OR OUT

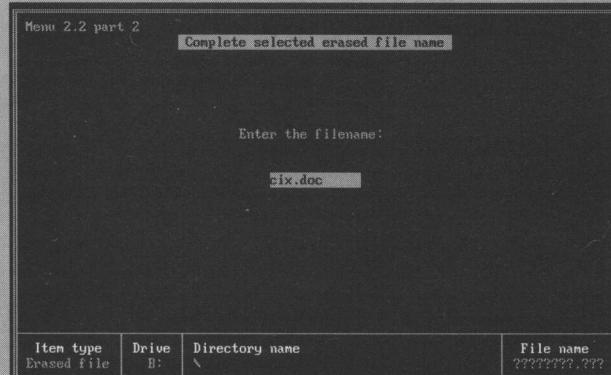
I wish to refer to the letters in issues 50 and 52, concerning DRIVPARM in MS-DOS 3.3.

Normally DRIVPARM is not supported in 3.3, so users make use of DRIVER.SYS instead, giving a virtual drive D. This isn't particularly handy, but at least it

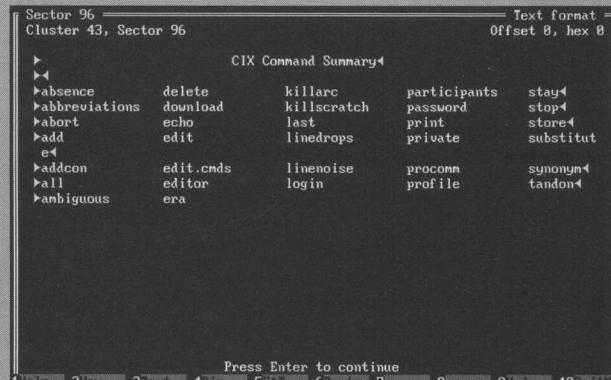
GETTING IT BACK

 I've just pressed the wrong key combination and started to format a datadisk. As soon as I realised what I'd done, I aborted the operation, but I had already formatted the first track and the disk was unreadable. As only track zero was formatted, the data is still there. Is there any way that I can recover it?

Raymond A Jones
Morecombe



1 If the first cylinder of a disk has been formatted, there are no files to unerase. You have to create a new one. This is done from the Unerase menu, just press [Enter] twice to get to the entry field



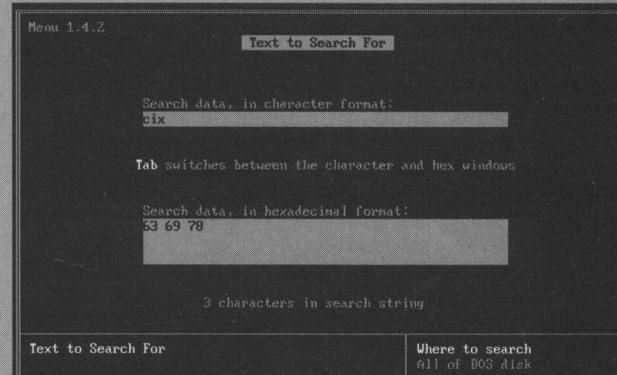
3 Norton finds the string in sector 96 – cluster 43. To check that it is the right stuff, I ask for a display of the sector. It certainly looks rather good. Some data files will require more careful identification though



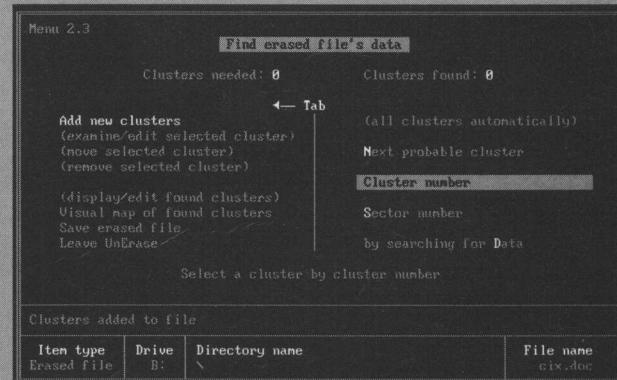
5 No more text appears after cluster 45, just garbage. With textual data like this, the job is actually fairly easy. With data files, it can take a lot of hours of careful work and copious notes to get the same results

If the data is in a recognisable ASCII-based format, you can. You need a set of disk utilities like *Norton Utilities* (there are others such as *PC Tools*, but I haven't used them). These enable you to search the disk for data, view sectors and add them to a file you create.

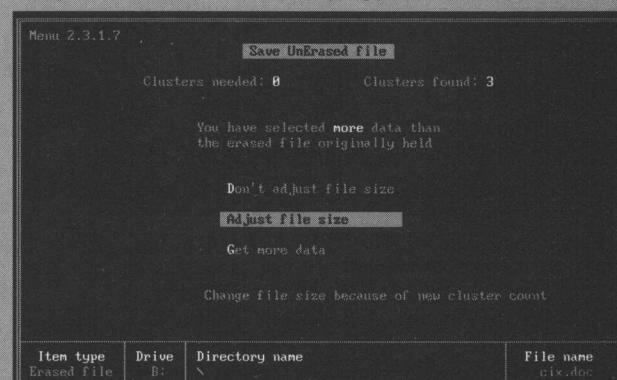
It helps if the data is not too fragmented on the disk and if you can find the first cluster of each file. It is only possible to recover an EXE or COM file provided you can identify the first cluster and the clusters are contiguous. Otherwise, forget it. The best defence of all is to make copies of all important data.



2 In this case, I know that the text file is a CIX command list and CIX occurs pretty near to the beginning. Note that it is worth having a look at a data file to see if there is any identifier in the header to hunt for



4 I now add the cluster to the new file that I created earlier. This is a pretty confusing screen, so take all the time you need to look at it. It's worth letting Norton show you the next one, skipping past those that don't fit



6 Now I can save all the clusters that I've added to the file created right at the very beginning of the process. The newly created file has a total length measurement of zero bytes, so I have to select Adjust Size

STRINGS ATTACHED

 For those programmers using Borland's Turbo Pascal who have difficulty getting the contents of a string variable of length one into a variable type character, or who want to put a character from a longer string into a character variable, here are a couple of functions which may help.

```
FUNCTION ASC1B (UP3: STRING) : INTEGER;
VAR W1,W2 : WORD;
    P1:^BYTE
BEGIN
    W1:=SEG(UP3);
    W2:=OFS(UP3)+1;
    P1:=PTR (W1,W2);
    ASC1B:=BYTE(P1^);
END;
```

Secondly:

```
FUNCTION ASC2B (UP3: STRING) : INTEGER;
VAR W1,W2 : WORD;
    P1:^BYTE
    W3 : INTEGER;
BEGIN
    W1:=SEG(UP3);
    W2:=OFS(UP3)+1;
    P1:=PTR (W1,W2);
    ASC:=BYTE(P1^);
    ASC2B:=CHAR(W3)
END;
*NOTE UP3 IS A STRING OF LENGTH 1*
```

These are used as follows:

```
PROGRAM TEST;

VAR A: CHAR;
    STR1:STRING[1];
    STRINGS:STRING[6];
    B:INTEGER;
BEGIN
    STRINGS:='ABCDEF';
    STR1:=COPY(STRINGS,3,1);
```

does work. However, try adding ASCII character 1 (you'll find that it looks rather like a smiling face) in the line:

DRIVPARM=/D:1/F:2 becomes:
DRIVPARM=@@@/D:1/F:2

Add this just after the equals sign, and 3.3 will accept DRIVPARM as a command. In the line above, this tells 3.3 that you have a 720K drive.

A Swiderski
Leerdam
Holland

I've had several letters on this subject – all making the same point. One reader had gone so far as to trace through the code. It seems that Microsoft didn't remove the DRIVPARM command, but merely partially disabled it. I can't think why, though.

Most readers claim that their version of 3.3 requires three 'smiling faces', [Ctrl][A] or [Alt]1, after the equals sign. It appears to work. At least one user found DRIVPARM works normally under 3.3 as long as its the first command in CONFIG.SYS.

You may have to try different editors to get this character – some are fussy about characters below 32 decimal (the space). Simon, the resident editor, certainly works.

```
B:=ASC1B(STR1);
A:=ASC2B(STR1);
WRITELN (A,'=CHAR CODE 'B);
END.
```

I hope you find this interesting.

Paul O'Connell
Cirencester

I'm sure that Pascal programmers will find it useful, though it seems a complex way of going about it. For those who haven't made much use of pointers in Pascal, that's what the [^] symbol does. It really is a caret too, the one above the six key. To me it looks a little contrived – isn't there a more direct way of doing this using pointers as in C? In Zortech C, for example, a similar end could be achieved like so:

```
#include <stdio.h>
#include <string.h>
main()
{
    int pos1=3;
    char string1[6];
    string1[0]='a';
    string1[1]='b';
    string1[2]='c';
    string1[3]='d';
    string1[4]='e';
    string1[5]='f';
    char_and_val(string1,pos1);
}

char_and_val(char * str2,int pos1)
{
    printf("%c = value %d",*(str2+pos1),(int)*(str2+pos1));
}
```

Here `char_and_val()` will print the character and its value from any point in any string. This works with a pointer to a string (`str2`) and an offset (`pos1`) in the `printf()` function. The same technique works if you just want to assign the values to variables and return them.

I can't see that the C is any less readable than the Pascal in this case either.

PICTURE THAT

 We have in our collection a number of Victorian and Edwardian negatives, slides and photographs. We have these listed on computer so that we are able to find specific images. However, we would like to store a copy of the image itself.

We have Vidi-PC, so we can produce a digitised image. The difficulty lies in the availability of suitable software. We are aware of SuperBase, but have had difficulty getting information from Precision Software about its product.

We need to store a small image with a couple of lines of information. In any one file there would be no more than a couple of hundred records with an average of about 50. S Eva
Historical Group
Royal Photographic Society
Washington

SuperBase is a reasonable choice, and fairly inexpensive (it starts at just over £200). Omnis 5 is a rather heavier duty package (with a heavy duty price) as is

Picture Card Box (£350). Knowledge Base comes in at around £150.

If you wish to enquire about these products, you may find the following numbers useful:

Knowledge Base
Format PC Ltd (0773) 820011
Omnis 5
Blyth Software (0728) 603011
SuperBase
Precision Software 081-330 7166
Picture Card Box
Business Simulations 071-925 0636

There really isn't any particular need for a complex system when you are dealing with such small numbers of records and simple reporting requirements.

You could do the job with a word processor such as Ami, WinWord or Legacy – though it would be a trifle slow since the images are in the document. Alternatively, you could write a simple, but fast, visual database, with Aurora Basic, the new Visual Basic from Microsoft, or WinBasic – both of which can handle bitmapped images. This way, the image would only be pulled in to order, making it much faster.

ECHO ECHO

 Over the years, I've seen a number of different ways of putting an empty line into a batch file. I would like to know if there is one definitive method of creating blank lines?

Thomas Bailey
Leeds

The usual method quoted is to use the line:

ECHO.

This doesn't work in all earlier versions of MS-DOS, however. Unfortunately, the method that did work in earlier versions – an echo followed by two spaces – stopped working later on. The method that used to be universal, working for all versions of MS-DOS, all MS-DOS clones and all COMMAND.COM replacements is:

ECHO [Space] [Alt] 255

An echo statement followed by a space; then hold down the [Alt] key and type 255. This prints a space and an invisible character on screen, leaving a blank line.

Unfortunately, this method (recommended by Van Wolverton in his

book *Supercharging MS-DOS*) doesn't work with MS-DOS 5.0. Oh dear, it seems that we're back to an echo followed by a full stop again.

INKY FINGERS

 After printing out hundreds of documents on your dot-matrix printer, you will find that the print is getting lighter and lighter as the ribbon fades. Take my advice – don't bother with ribbon re-inkers – simply go down to your local shoe shop and buy some suede shoe dye. Then, open the ribbon cartridge, dab on the dye and let it soak through. Allow it to dry for about an hour and your ribbon will be as new.

P J Nutter
Chippenham

I, too, used to go in for re-inking fabric ribbons – but unfortunately it is rather easy to get it wrong.

It's important to use an ink that will not gum up the print head. This happens with the WD-40 method, for example, and with other oil-based inks. However, it is especially important to avoid taking a risk with the 24-pin print heads, for these must be kept pristine. If they are not kept in such

a condition, they fail remarkably quickly.

For those who want someone to complain to if re-inking does damage the print head, try the Caspell Re-Ink product available from (020) 666155.

TALKING TO THE BIG BOYS

 We are a mortgage lending company based in the UK, with an urgent need to develop our management information systems rather rapidly.

However, due to the complexity of our funding transactions and the flexibility that is required at user level to vary the queries we wish to operate, we find that we do most of our analytical work in the PC environment, with the source data being downloaded from an IBM AS400.

However, the business of downloading through IBM's PC-Support is, unfortunately, a fairly time-consuming and inefficient process. What we are looking for is a software driver that will allow a seamless interface between a PC relational database, such as Clarion Professional Developer, and the AS400 data, so that the data can be queried from the PC

WISDOM OF SOLOMON



Dr Alan Solomon discovers that the Swedes aren't keen on Windows, asserts that memory is as cheap as it will get and builds his own dream machine.

CHEAP CHIPS

The price of memory seems to have stalled at £30 per Mbyte. It's always rather difficult to spot the bottom of the market, but this might well be it. At this price, chip foundries will be cutting back production or closing, so there could be a bit of a shortage (or at least less of a glut) coming along in the future. Chip up now, and don't say you weren't warned.

CUT-PRICE SPEED

After banging on about how cheap 486 PCs are, and after careful cost justification to the Management, I finally convinced her that anyone who spends as much time programming as I do should have a fast machine to work on.

My language of choice is Turbo Pascal, which proves quite fast enough on a 16MHz 386 PC (bought from Morgans for £600 including the hard disk). For my main work, however, I use a very specialised compiler that I have written myself. As I'm the only person who uses it, it isn't worth doing a lot of work to make it fast, especially since making the necessary alterations would undoubtedly bring in bugs, which means more time spent.

A cheap way (compared with the cost of several days of programmer's time) to make

it fast is to run it on a 25MHz 486 with 128K of cache, eight Mbytes of standard memory – most of which will be used as a RAMdisk, 512K of memory on the hard disk controller and a fairly fast 32 Mbytes hard disk (speed is a much less important when you've got a RAMdisk as well as a cached controller).

How much, then, did this Rolls Royce of computers cost? The 80486 motherboard cost £1,150, eight Mbytes of memory came in at £280, a caching controller £279, and 32 Mbytes of hard disk £250.

This all gets put into the shell of an XT (whose motherboard blew up), which cost under £300 including screen, floppy and keyboard. We don't then see much change from £2,000, but that gets me something that is as close to the bleeding edge of technology as I'd care to get.

Here are my sources: Shell with power supply – Morgans 'generic' 071-255 2115; motherboard and memory – DS Computers 071-281 5096; caching controller – Compuadd (0800) 373535. For details of the hard disk, check out the advertisements in PC PLUS.

Does this multi-sourced monster actually work? Well, it looks like it does. The big question is, will it still be doing so in several month's time? The answer? I'll let you know in several month's time.

I recently gave a seminar on PC matters to corporate PC support staff in Sweden. I asked the group how many of them were using Windows 3.0, and about half said yes. I then asked how many would have installed it if they had known six months ago what they know now, and interestingly, the answer was – none.

'Why is this?', I asked. Some mentioned the dreaded 'Unrecoverable Application Error', others cited 'Divide by Zero' and yet more got no error message at all when it hung. It seems that Windows places a considerable support burden on the PC staff.

I translated 'Unrecoverable Application Error' for them; 'Unrecoverable' means 'I can't fix it' and 'Application Error' means that it isn't my fault, it's the application. Roll on Windows 3.1.

However, I do hear good things about OS/2 2.0 – the 386 mode version. The Microsoft technical support line is on (0734) 576744, and if you have trouble getting through, write and tell me.

platform while it remains on the AS400. Could you tell me if this is possible, and if so who can we contact to put these systems in place?

Richard Blackburn
Dorking

This can be done. I spoke to Tailor Made (0494) 473338, a company acting as a Clarion applications developer as well as systems operator for the Clarion User Group bulletin board. Tailor Made tells me that there is software to facilitate Clarion to AS400 queries, and the company is perfectly happy to develop such applications for you.

We actually uncovered another possibility from a back issue of *The Clarion Tech Journal*. It is, in fact, an advertisement for an American product that is called DATA JUNCTION, from Tools & Techniques Inc. T, 1620 W 12th, Austin, TX 78703; telephone (0101) 512-482-0824, FAX (0101) 512-482-0976, which provides a variety of interface products, may quite possibly be able to help.

EXAMPLE CODE

 I gave my Commodore 64 to my grandchildren and bought a 386SX. I have had to learn from MS-DOS and GW-BASIC user guides, since there is no good computer store within 50 miles. I'm managing to get along with GW-BASIC, but not so well with MS-DOS.

I like the programs that come on the SuperDisk, but when I try to find out how they work and TYPE them, all I get is ASCII-style hieroglyphics and tinkling

bells. I would like to be able to read any programs that I buy (other than those that are password protected). Is there a book I could buy?

J K Todd
Blandford Forum

The programs that you write in GW-BASIC are a list of instructions in words that a human can understand; the PC certainly can't understand them however. Consequently, they must be interpreted by the GW-BASIC program in order to run on the machine. Each GW-BASIC instruction invokes a machine code routine within the GW-BASIC interpreter. It is, in fact, this machine code routine that actually makes things happen.

Most applications (including programs on the SuperDisk) are in machine code (either a .COM or an .EXE file). These are just long lists of numbers; some corresponding to microprocessor instructions and some to the data that the instructions act on.

If you type these programs to the screen, MS-DOS tries to convert each one into a character – though the numbers are generally not intended to be characters. Every time a number seven (bell) comes up, the PC will beep. Similarly, when a number 26 (EOF or end of file) comes up, the listing will cease.

In most cases, these programs were originally written in a high-level language (like GW-BASIC), but one that can be compiled to machine code – QuickBasic is one such. Once they are compiled, it is not possible to read these programs, though you can read the original source code.

THE BIGGER THE BETTER

 I have a PC XT with a Miniscribe model 8438 hard disk installed. According to advertisements that I've read, this should be a 30 Mbyte drive, yet I only have 21 Mbytes. Where are the other 9 Mbytes?

Norton Disk Doctor says that the drive has 611 cylinders, four heads, 512 bytes per sector, four sectors per cluster and 512 bytes per sector. Note that it also says that it has 21 Mbytes storage capacity.

John Freemantle
Southend On Sea

Norton is quite correct. The storage is calculated (in this particular instance) by multiplying heads by cylinders by sectors by bytes per sector. That is 611 by 4 by 17 by 512, which equals 21,272,576 bytes in total. Since one single megabyte is technically 1024 by 1024 bytes, that gives 20.28 Mbytes.

The explanation is that the disk is formatted using an MFM controller card, whereas the advertisements speak of RLL drives. You need an RLL controller card (for that disk drive) and then you need to reformat the hard disk.

The new card will lay down 26 sectors on each separate cylinder instead of 17, which will actually give you 32,534,528 bytes of storage.

A word of warning – be careful to make sure that the particular dealer that you buy from can give you any of the information that the card will ask for when it formats your hard disk.

The PC PLUS Fact Panel Guide

These days there's no such thing as a 'standard' PC – instead we've got a range of different disk sizes, graphics adaptors and hardware add-ons, such as mice, modems and memory boards. This makes the claim that a piece of software 'Runs on IBM Compatibles' a bit meaningless, so we're introducing a fact panel on all our reviews which shows exactly what hardware you need to run the program, and what optional equipment the program can make use of. The fact panel has four sections, as follows:

1. Display types.

This section shows the type(s) of screen display supported by the program. Remember that your PC's display type is determined by its combination of display adaptor and monitor, so for example a PC1640 will have a Hercules, CGA or EGA display depending on the MD, CD or ECD monitor in use.

The icons are as follows:

-  80x25 character text-only – runs on any IBM-compatible PC.
-  Displays Hercules monochrome graphics on Hercules-compatible machines.
-  Displays Colour Graphics Adaptor (CGA) quality graphics on CGA, EGA and VGA machines.
-  Displays Enhanced Graphics Adaptor (EGA) quality text/graphics on EGA and VGA machines.
-  Displays Video Graphics Array (VGA) quality text/graphics on VGA machines only.
-  Displays Multi-Colour Graphics Array (MCGA) graphics on MCGA machines.
-  Displays PC1512 16-colour graphics on the PC1512 only.
-  Displays Tandy Graphics Adaptor graphics on Tandy compatible machines.
-  GEM  Windows

Windows and GEM are both Graphical User Interfaces, which adjust automatically to make the best use of   and  displays. Other types may also be supported. You may need to buy Windows or GEM separately.

Programs with just a  work on all IBM-compatible PCs, since all types of display adaptor support a standard text-only mode, which includes the 'IBM graphics character set' –

the boxes, lines and funny faces used by many programs. Monochrome systems may interpret colour text codes (or 'attributes') as flashing, underline etc.

Other icons refer to 'all points addressable' graphics displays, used in business graphics (e.g. Lotus-style spreadsheets), painting and drawing programs, desktop publishers, games and others.

A program may have more than one icon – for example,   means that the software works with both Hercules and CGA adaptors.

2. Issue Disks

This tells you what type of floppy disk the software is supplied on.

-  5.25", 360K floppy, or 1.2Mbyte if marked '1.2'.
-  3.5", 720K floppy, or 1.4 Mbyte if marked '1.4'. One icon means only available on that disk type (though check with your dealer)
-  both types supplied as standard
-  or  5.25 /3.5 choice – see price for details.

3. Minimum Hardware Requirements

Items in this section are mandatory – either the program won't run at all without them, or would be unusable in practice. The icons are:

-  Single floppy
-  Twin floppy
-  Hard disk
-  80286 processor chip
-  80386 processor chip
-  Mouse

4. Other hardware supported

These items are not mandatory, but the program can make use of them. The icons are the same as those used in the minimum hardware section.

Notes: 1. Most laser printers will emulate Epson FX series matrix printers, so will work in basic mode with a matrix-only program. A laser driver indicates support for special fonts and high-resolution graphics. Always double check that your particular model of matrix or laser printer is supported.

2. There are various EMS standards around, the most popular being LIM EMS version 4.0. Check that your type is supported by the program.

OUR VALUE VERDICTS

Product fact boxes also contain verdict ratings, in the range 0 - 5, covering four areas of the product – Range of Features, Overall Speed, Ease of use and Documentation – plus an overall Value verdict.

These ratings are made in the context of the program's price and intended position in the market, so a £25 filer which provides good sorting facilities might get a Range of Features rating of 4, while a £600 bells-and-whistles database which couldn't import text data might be marked down to three.

The overall value verdict is made on the same basis. It is quite possible for a very expensive product to be excellent value for money because it really does do the job well, while a very cheap product might be poor value because it is too lacking in features to do anything at all.